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Virtual Special Issue of 2019 International Symposium on Clean Energy and Advanced Carbon Materials (CEAM-2019)

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The 2019 International Symposium on Clean Energy and Advanced Carbon Materials (CEAM-2019) was held on September 26−29, 2019 in Busan, Korea. Following the successful organization of CEAM-2018,[1] CEAM-2019 was sponsored jointly by the Pusan Clean Coal Center at Pusan National University and the International Collaborative Centre for Carbon Futures at the Newcastle Institute for Energy and Resources (NIER), The University of Newcastle. The symposium focused on the following research themes: coal and biomass pyrolysis, gasification, and combustion; coal and biomass to fine chemicals; carbon capture and utilization; hybridization technology for coal power generation; metallurgical coke production; advanced carbon materials from coal and biomass; low carbon economy sustainability; energy storage technology; and gas treatment and smog control.

There were a large number of keynote lectures, oral presentations, and posters presented at the symposium. Following the symposium, only selected manuscripts were submitted to this virtual special issue of *Energy & Fuels*. A total of 14 papers (listed in Table 1) survived the usual rigorous peer-review process of the journal and were accepted for publication.

Pyrolysis, gasification, and combustion of coal and biomass and related issues, such as ash and flue gas treatments, have been the focus of the symposium, which were reflected by the papers below. Isworo et al.[2] evaluated the torrefied empty fruit bunch (EFB) and kenaf combustion characteristics through a comparison study between EFB and kenaf based on microstructure analysis combined with the thermogravimetric method. Liu et al.[3] studied the correlation between char gasification characteristics at different stages and the microstructure of chars by combining X-ray diffraction and Raman spectroscopy. Rahman et al.[4] studied the kinetics and mechanism of the catalytic oxidation of nitric oxide in coal combustion flue gas over the Co-doped Mn−Ti oxide catalyst. Li et al.[5] conducted systematic research on limestone attrition and product layer development during fluidized-bed sulfation. Li et al.[6] studied the influence of the slag−crucible interaction on coal ash fusion behavior at high temperatures. Hui et al.[7] reported their improved understanding of the formation of the plastic layer during heating of Australian coking coal blends using three-dimensional image analysis techniques. Matamba et al.[8] reported the promotion effects of pressure on polycyclic aromatic hydrocarbons and H_2 formation during flash pyrolysis of palm kernel shell biomass using a pressurized entrained flow reactor. So et al.[9] reported the simultaneous measurement of O_2 and CO concentrations in the exhaust gas of a methane/air flame using tunable diode laser absorption spectroscopy. The applications of carbon materials from coal and biomass for battery and energy conversion represented the recently increased research interests and are reflected by the papers below. Qu et al.[10] studied the synthesis of high reversibility anode composite materials using T-Nb_2O_5 and coal-based graphite for lithium-ion battery applications. Chen et al.[11] reported the enhanced cycle stability of $Na_2Ti_3O_7$ nanosheets grown *in situ* on nickel foam as an anode for sodium-ion batteries. Liu et al.[12] derived N−O−S Co-doped hierarchical porous carbons from calcium lignosulfonate, which can be used for high-performance supercapacitors. Li et al.[13] studied the intrinsic solid-state reaction characteristics of coals and chars in a direct carbon fuel cell, and their research was focused on the significance assessment of fuel-borne factors. Chen et al.[14] reported a novel renewable double-energy system for activated biochar production and thermoelectric generation from waste heat. Zeng et al.[15] reported the *in situ* synthesis of MnO_2/porous graphitic carbon composites as high-capacity anode materials for lithium-ion batteries.

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Notes

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